

**Notice of Allowability**

Application No.

10/694,294

Examiner

Gary L. Laxton

Applicant(s)

ITABASHI ET AL.

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the application filed 10/28/03.
2. ☒ The allowed claim(s) is/are 1-13.
3. ☒ The drawings filed on 28 October 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 10/28/03
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

*G. L. Laxton*  
Gary L. Laxton  
Patent Examiner  
Art Unit: 2838

## DETAILED ACTION

### *Allowable Subject Matter*

1. Claims 1-13 are allowed.
2. The following is an examiner's statement of reasons for allowance:

Prior art fails to disclose or suggest, inter alia, a switching regulator having recovering means for operating again a rush current preventing means even after once completing its operation, if a prescribed point voltage descends and crosses down a prescribed descending reference which is fixed lower than the prescribed ascending reference. Indeed, the closest prior art reference Hwang, prevents rush current by suppressing the duty cycle of the PWM signal if a prescribed point voltage ascends (120 & DC ILIMIT) and crosses over a prescribed ascending reference (122); however, Hwang does not operate the rush prevention means again even after once completing its operation, especially, if the prescribed point voltage (120) descends and crosses down a prescribed descending reference. What Hwang does disclose, is recovery means (116 & 128) that discharges the rush prevention means (C2) (i.e. "recovering" by discharging the capacitor C2) when voltage signal DC ILIMIT (from sensor 120) is greater than a prescribed threshold (122) which in turn sets flip flop (128) and closes switch (130) to discharge rush prevention means (C2). Then, instead of operating the rush prevention means (C2) again when the prescribed point voltage (120) descends and crosses down a prescribed descending reference (122), the recovering means (130) in Hwang is reset by resetting the flip flop (128) by the duty limit circuit (116) at the beginning of the next switching cycle. Therefore, to summarize, instead

Art Unit: 2838

of the recovering means (130) operating the rush current prevention means (C2) again if the prescribed point voltage (120) descends below a prescribed descending reference; Hwang automatically resets the rush prevention means at every next switching cycle by resetting the flip flop (128) with the duty cycle circuit (116) not when prescribed point voltage (120) descends below a prescribed descending reference. Clearly a novel difference between the two inventions.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hwang US 6,674,272 discloses a current limiting technique for a switching power converter.

Art Unit: 2838

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary L. Laxton whose telephone number is (571) 272-2079. The examiner can normally be reached on Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571) 272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Gary L. Laxton  
Patent Examiner  
Art Unit 2838

9/29/04